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(54) Means for removing rope tackle  
and the like from a rotating shaft

(57) The invention relates to a means  
for removing rope tackle and the like  
which has been wound around a rotat-  
ing shaft, such as a propeller. In order to  
remove the rope tackle or the like,  
knives are mounted on a stationary  
shaft casing (6) on the propeller shaft,  
with the knife edges directed axially  
outwards.

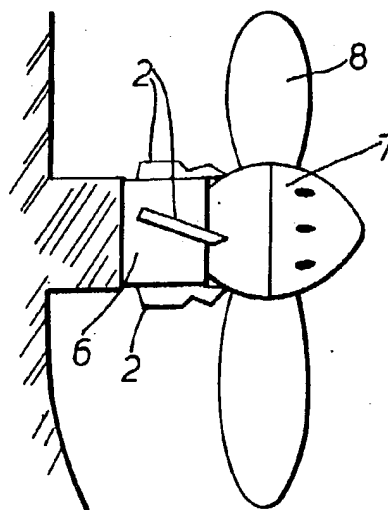


Fig. 2

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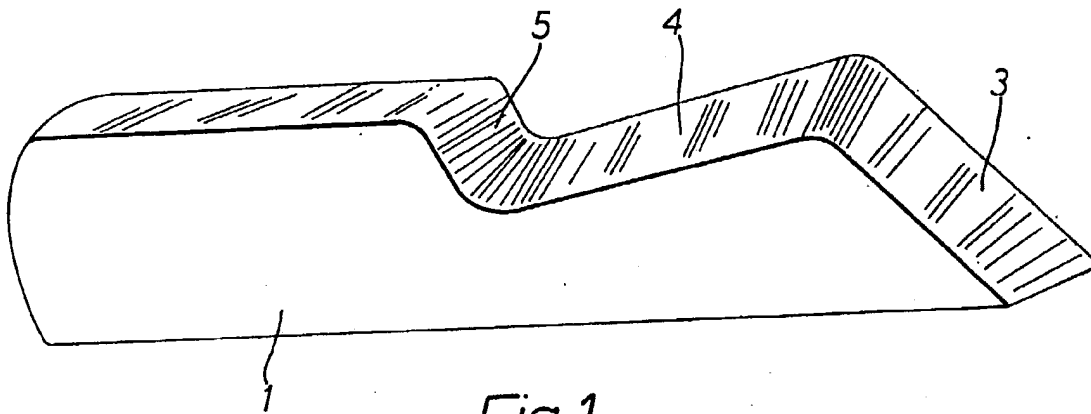


Fig. 1

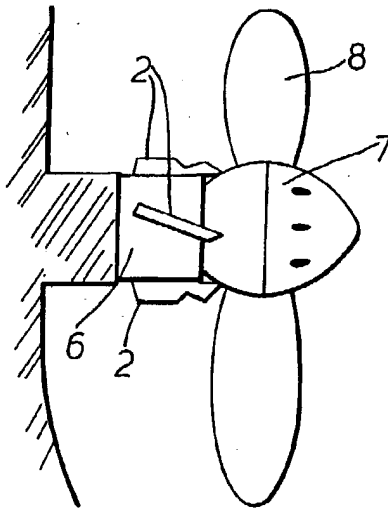


Fig. 2

## SPECIFICATION

**A means for removing rope tackle and the like from a rotating shaft**

5 The invention relates to a means for removing rope tackle and the like which has become wound around a rotating shaft, especially a propeller shaft.

A well known problem in connection with smaller  
10 boats, such as fishing vessels and the like, is that rope tackle and similar gear, drifting in the sea, can become wound around the propeller shaft and impede propulsion. Such problems have become steadily worse after nylon and other artificial fibers  
15 began to be used for fishing gear. Ropes of nylon and other artificial fibers are very strong, and most types also have a certain buoyancy, such that they float on or near the surface of the water and can become wound around the propeller shaft and the  
20 rudder post, which can cause great damage. In addition, it frequently happens that a fishing net or the like, when being dragged and set, comes into the propeller.

In the worst case, this can mean that the boat has  
25 to go into dock, or that the help of a diver is required to remove the rope. In all instances, the lashing of the rope around the propeller shaft results in a stoppage of operations.

Material which becomes wound around a rotating  
30 shaft can also cause problems on other types of equipment, for example, on lawn mowers.

The purpose of the present invention, therefore, is to provide a means by which this type of coiling around shafts can be avoided. In particular, the  
35 invention seeks to provide a means which will cut through any rope tackle and gear which interferes with the propeller on a boat, such that an operating stop will be avoided. The means prevents rope tackle and the like from interfering with or lashing onto the  
40 propeller casing, which would eventually stop the engine.

This is obtained by means of an arrangement whose characteristic features are disclosed in the appurtenant patent claims.

45 The means of the invention is adapted to be mounted on a propeller shaft, and comprises knives mounted upstream of the propeller, said knives having a cutting edge which cuts the rope with the aid of the pulling power of the propeller, the rope  
50 becoming tightened around the knives and thus being cut through.

The invention will be explained in greater detail in the following with reference to an embodiment example, which is illustrated on the accompanying  
55 drawings, where

*Figure 1* is a perspective drawing of a knife for cutting rope tackle on the means provided in accordance with the invention, and

*Figure 2* is a schematic side view of the means of  
60 the invention installed on a propeller shaft.

The means of the invention consists preferably of four knives which are mounted on a stationary casing which is provided on a propeller shaft, the knives being arranged such that their cutting edges  
65 are directed axially outwards. Such a knife is shown

in *Figure 1*. The knife 1 is formed with a pointed tip 2 which points towards the propeller. At the pointed end, the knife is formed with an upwardly sloping or rising edge 3, with a slightly downwardly sloping section 4 in back of the edge 3, and a short rising section 5 in back of the section 4. To the rear of said rising portion 5 is the knife body itself, which has no cutting edge. These knives are mounted as shown on *Figure 2*. Four such knives are welded an equal  
70 distance apart, i.e., at an angular distance of 90° relative to one another, onto a metal casing 6 which is mounted so as to be stationary on the propeller shaft. The knives cover the space between the shaft mounting and the head of the propeller, as shown on the drawing. Each knife is mounted such that the tip 2 of the cutting edge projects beyond the casing toward the propeller 7, ending in the vicinity of the propeller blades 8. With a variable pitch propeller, this will correspond to the innermost position of the  
80 propeller blades. The knives are mounted at an angle of 12 - 15° in relation to the longitudinal direction of the vessel, with the knife tips toward the normal direction of rotation of the propeller.

If rope tackle comes into the space between the  
90 hull of the ship and the propeller head, it will wind around the knives, and as the rope is pulled tighter owing to the rotation of the propeller, it will be pressed against the edges of the knives, tightening around them until the rope is cut through. The rope tackle might first, for example, encounter the sloping portion 3, and as it tightens, slide along the edge toward the flatter section 4, finally coming into the corner against the steeper section 5, where it becomes very tightly drawn and will be cut through.

The mounting of such knives on the propeller shaft  
100 thus ensures, in a simple manner, that undesired rope tackle around the propeller will be cut through, such that the problem of rope in the propeller is solved without entailing any interruption of normal operations or, in the worst case, having to dock the boat.

## CLAIMS

110 1. A means for removing rope tackle and the like which has become wound around a rotating shaft, especially a propeller shaft, *characterised* by knives (1) which are mounted on a stationary shaft casing (6) on the propeller shaft, with the knife edge  
115 directed axially outwards.

2. A means according to claim 1, *characterised* in that the knives (1) are mounted at angular distance of 90° relative to one another around the casing.

3. A means according to claim 1, *characterised* in  
120 that the knives are mounted at an angle of about 12° - 15° in relation to the axis of the shaft.

4. A means according to claim 1, for use on a propeller shaft for a propeller with variable-pitch blades, *characterised* in that the knife edge is formed with a tip (2) which, at least when the propeller blades are in a rotating position, lies near the propeller blades.

5. A means according to claim 1, *characterised* in that the knife edge has a rising section (3) extending  
130 rearwardly of the tip (2) followed by a flatter section

(4), which terminates in a short rising section (5).

6. A means for removing a rope from around a rotating shaft comprising a knife mounted on a casing, which casing is adapted to be mounted  
5 non-rotatably on the shaft with the knife edge directed radially outwardly with respect to the longitudinal axis of the shaft.

7. A means for removing a rope from around a rotating shaft substantially as hereinbefore described with reference to the accompanying drawings.  
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